

REMARKS

Reconsideration of the above-identified patent application in view of the present amendment is respectfully requested.

This amendment cancels claims 1-22 and adds new claims 23-44. Formal drawings are being filed contemporaneously with this amendment.

The Office Action of May 21, 2003 rejected claims 1, 2, 4-7, 10, 11, and 14 as being anticipated by Lemelson et al., U.S. Patent No. 6,400,835. Claim 3 was rejected as being obvious under 35 U.S.C. §103 over Lemelson et al. in view of Evans et al., EPO Application No. 924,123 A2. Claims 8 and 9 were rejected as being obvious over Lemelson et al. in view of Breed et al., U.S. Patent No. 5,845,000. Claims 12, 13, 16-18, 21, and 22 were rejected as being obvious over Lemelson et al. in view of Merrick et al., U.S. Patent No. 5,348,005. Claim 15 was rejected as being obvious over Lemelson et al. in view of Merrick et al. and Evans et al. Claims 19 and 20 were rejected as being obvious over Lemelson et al. in view of Merrick et al. and Breed et al.

New claim 23 recites an imaging system for a vehicle. The imaging system comprises an illuminator for illuminating a predefined field located outside of the vehicle and adjacent an entryway to an interior of the

vehicle. The imaging system further includes a detector for detecting radiation reflected from a person located in the predefined field. The detector is responsive to the detected radiation for providing image signals. A processor is responsive to the image signals from the detector. The processor includes face recognition software for analyzing the image signals for facial features of the person located in the predefined field. The processor compares facial features of the person to known facial features of authorized vehicle occupants to determine whether the person is an authorized vehicle occupant. The processor causes the entryway to automatically become unlocked in response to a determination that the person is an authorized vehicle occupant.

It is respectfully suggested that new claim 23 patentably defines over Lemelson et al, Evans et al., Breed et al. and Merrick et al., whether taken singularly or in combination. Lemelson et al. fails to teach or suggest illuminating or detecting outside of the vehicle. In Lemelson et al., all occupant detection is done within the passenger compartment of the vehicle. Breed et al., in Fig. 8, illustrates an external monitoring system for detecting headlights and taillights of vehicles. (Breed et al., Col. 19, lines 26-28). Breed et al. also fails to

teach or suggest detecting a person outside of the vehicle. Evans et al. and Merrick et al. also fail to teach or suggest this feature of claim 23. Therefore, since none of the references teaches or suggests this feature of claim 23, a combination of the references also fails to teach or suggest this feature. Thus, allowance of claim 23 is respectfully requested.

Moreover, none of the references teaches or suggests using face recognition software to determine if a person outside of a vehicle is an authorized vehicle occupant and, in response to determining that the person is an authorized vehicle occupant, automatically unlocking a vehicle entryway. Lemelson et al. only uses the facial recognition system within the vehicle. None of the other Breed et al., Evans et al., and Merrick et al. teaches or suggests face recognition software. Thus, for this further reason, allowance of claim 23 is respectfully requested.

Claims 24-34 depend from claim 23 and are allowable for at least the same reasons as claim 23. Additionally, claims 24-34 are allowable for the specific limitations of each claim.

Specifically, claim 28 recites the illuminator is pulsed on and off. The detector obtains a first image when the illuminator is on and obtains a second image when the

illuminator is off. The processor determines a difference between the first and second images to mitigate effects of ambient light. The Office Action relied upon a combination of Lemelson et al. and Merrick et al. in rejecting previous claims reciting image differencing to mitigate effects of ambient light. It is respectfully suggested that one of ordinary skill in the art would not combine Lemelson et al. and Merrick et al. The system of Merrick et al. is not concerned with taking an image of a person for recognition purposes but is instead directed toward oxygen saturation of tissue. As cited motivation for combining Lemelson et al. and Merrick et al., the Office Action states that ambient light may distort the image values recorded from biological tissue in the face recognition system of Lemelson et al. The Office Action cites no source for such a statement. If the Examiner has personal knowledge that ambient light on the biological tissue of the face distorts the images in the system of Lemelson et al., then Applicant, at this time and pursuant to 37 C.F.R. §1.104(d)(2), requests an affidavit of the Examiner to support the Examiner's statement.

Claim 29 recites that the illuminator is also adapted to illuminate a predefined interior vehicle field and the detector is adapted to detecting radiation reflected from an occupant of the vehicle that is located in the predefined vehicle interior field and to providing

occupant image signals. The processor compares facial features of the occupant image signals to the known facial features of authorized vehicle occupants and causes a vehicle operation to be performed in response to a facial feature match. Lemelson et al, Evans et al., Breed et al. and Merrick et al. all fail to teach or suggest a system for identifying persons both outside and inside a vehicle using face recognition software. Therefore, allowance of claim 29 is respectfully requested.

Claim 32 recites that the processor, in response to a facial feature match, identifies the occupant and limits operation of the vehicle to a maximum driving speed associated with the identified occupant. Lemelson et al, Evans et al., Breed et al. and Merrick et al. fail to teach or suggest this feature of claim 32. Therefore, allowance of claim 32 is respectfully requested.

New claim 35 recites an intruder detection system for a vehicle. The intruder detection system comprises an illuminator for illuminating an interior portion of the vehicle and a detector for detecting radiation reflected from a person located in the interior portion. The detector is responsive to the detected radiation for providing image signals indicative of an image of the person. The intruder detection system also includes a processor that is responsive to the image signals from the

detector. The processor includes face recognition software for analyzing the image signals for facial features of the person. The processor compares facial features of the person to known facial features of authorized vehicle occupants to determine whether the person is an authorized vehicle occupant. The processor sounds an alarm and records the image of the person in memory when the processor determines that the person is not an authorized vehicle occupant.

It is respectfully suggested that new claim 35 patentably defines over Lemelson et al, Evans et al., Breed et al., and Merrick et al., whether taken singularly or in combination. None of Lemelson et al, Evans et al., Breed et al. and Merrick et al. teaches or suggests an intrusion detection system using face recognition software that, in response to determining that a person is not an authorized user, sounds an alarm and records the image of the person in a memory. Since none of the references teach or suggest this feature of claim 35, a combination of the references also fails to teach or suggest the feature. Therefore, allowance of claim 35 is respectfully requested.

Claims 36-39 depend from claim 35 and are allowable for at least the same reasons as claim 35. Additionally,

claims 36-39 are allowable for the specific limitations of each claim.

Specifically, claim 39 is allowable for reasons similar to claim 28, discussed above. Therefore, allowance of claim 39 is respectfully requested.

Claim 40 recites an imaging system for a vehicle. The imaging system comprises an illuminator for illuminating an interior portion of the vehicle and a detector for detecting radiation reflected from a person located in the interior portion. The detector is responsive to the detected radiation for providing image signals indicative of an image of the person. The imaging system also includes a processor that is responsive to the image signals from the detector. The processor includes face recognition software for analyzing the image signals for facial features of the person located in the interior portion. The processor compares facial features of the person to known facial features of authorized vehicle occupants to determine whether the person is an authorized vehicle occupant. The processor, in response to a facial feature match, identifies the occupant and limits operation of the vehicle to a maximum driving speed associated with the identified occupant.

It is respectfully suggested that new claim 40 patentably defines over Lemelson et al, Evans et al.,

et al. and Merrick et al., whether taken singularly or in combination. The references fail to teach or suggest an imaging system having a processor that uses face recognition software to identify the occupant of the vehicle and, in response to identifying the occupant, limits operation of the vehicle to a maximum driving speed associated with the identified occupant. Since none of the references teach or suggest this feature of claim 40, a combination of the references also fails to teach or suggest the feature. Therefore, allowance of claim 40 is respectfully requested.

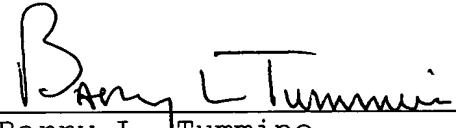
Claims 41-44 depend from claim 40 and are allowable for at least the same reasons as claim 40. Additionally, claims 41-44 are allowable for the specific limitations of each claim.

Specifically, claim 44 is allowable fore reasons similar to claim 28, discussed above. Therefore, allowance of claim 44 is respectfully requested.

In view of the foregoing, it is respectfully submitted that the above-identified patent application is in condition for allowance, and allowance of the above-identified patent application is respectfully requested.

Please charge any deficiency or credit any
overpayment in the fees for this amendment to our Deposit
Account No. 20-0090.

Respectfully submitted,


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